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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,362	09/11/2003	Masayuki Yamamoto	501.43042X00	4847

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EXAMINER

MANOSKEY, JOSEPH D

ART UNIT	PAPER NUMBER
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2113

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/659,362	YAMAMOTO, MASAYUKI	
	Examiner	Art Unit	
	Joseph D. Manoskey	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/11/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/11/03, 9/10/04, 8/11/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 11 September 2004, 10 September 2004, and 11 August 2005 were considered by the examiner. However Japanese Patent Publication 2002 063063 filed in the case is missing several pages. The Examiner requests that the Applicant submit a new copy along with the next response to be placed in the case.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-7, 9, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 2-7, 9, and 10 recite the limitation "A method for managing failure information" in line 1 respectively. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Barnett et al., European Patent Application 1115225A2, hereinafter referred to as “Barnett”.

7. Referring to claim 1, Barnett teaches a storage area network (SAN) that includes RAID storage and a communications architecture manager (CAM) that uses simple network management protocol/management information base (SNMP/MIB) to monitor devices. The SAN uses Fiber Channel for data and a TCP/IP network for the management of the devices. This is interpreted as in a system including: at least one storage device, each equipped with a real volume; a virtualization device connected to said at least one storage device by way of a network and managing a real volume of said at least one storage device as a virtual volume; and a management server connected to said at least one storage device and said virtualization device by way of a management network (See Fig. 3, Col.1, lines 3-13, and Col. 5, lines 22-39).

Barnett discloses the CAM receiving errors generated from failing components and the generated the errors can cause devices along the same network connection path to generate additional errors, this is interpreted as a failure notification receiving method comprising a failure notification step in which said management server receives

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a plurality of failure notifications from said at least one storage device and said virtualization device at which a failure is detected (See Col. 2, lines 30-36). Barnett teaches the use of a SAN topology map and a SAN diagnostic table and comparing each error temporally and spatially with the other errors, this is interpreted as associating step in which said managements server associates said plurality of failure notifications based on associations managed by said virtualization device between said real volume and said virtual volume (See Col. 2, lines 32-36). Finally Barnett teaches determining a candidate for generating the error and reporting the candidate for replacement, this is interpreted as a failure message outputting step for outputting results in which said plurality of failure notifications are associated (See Col. 2 ,lines 36-38).

8. Referring to claim 2, Barnett teaches the use of a shared RAID, this is interpreted as wherein said associating step includes a step of associating a plurality of failure notifications involving a shared real volume or virtual volume related to a failure notified by a failure notification (See Fig. 3 and Col. 5, lines 22-25).

9. Referring to claim 3, Barnett discloses comparing temporally each error with the other errors, this interpreted as wherein said associating step includes a step of associating a plurality of failure notifications received by said management server within a fixed time interval (See Col. 2, lines 32-36).

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10. Referring to claim 4, Barnett teaches generating a SAN topology map, a SAN determination information table, and a SAN diagnostic table. These are used to analyze the errors. This is interpreted as having said management server receive configuration information about said network from a device connected to said network and having said management server identify an association relationship between said real volume and said virtual volume based on said configuration information (See Col. 1, lines 23-29 and Col. 2, lines 26-36).

11. Referring to claim 5, Barnett discloses the CAM receiving errors generated from failing components and the generated the errors can cause devices along the same network connection path to generate additional errors, this is interpreted as said associating step includes a step of identifying causal relationships between said plurality of failure notifications based on an association relationship between said real volume and said virtual volume (See Col. 2, lines 30-36). Barnett also teaches determining a candidate for generating the error and reporting the candidate for replacement, this is interpreted as said outputting step includes a step of outputting said identified causal relationships (See Col. 2, lines 36-38).

12. Referring to claim 6, Barnett teaches the use of a shared RAID, this is interpreted as a step of associating a plurality of failure notifications involving a shared real volume or virtual volume related to a failure notified by a failure notification (See Fig. 3 and Col. 5, lines 22-25). Barnett discloses the CAM receiving errors generated from failing

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components and the generated the errors can cause devices along the same network connection path to generate additional errors and determining a candidate that generated the error, this is interpreted a step of identifying, out of said associated failure notifications, a failure notification notifying a hardware malfunction as a failure notification notifying a failure cause and a failure notification notifying an access error as a failure notification issued under influence of said failure cause (See Col. 2, lines 30-36).

13. Referring to claim 7, Barnett discloses the use of weighting system in the diagnostic analysis for the various errors, this is interpreted as having said management server take a plurality of severity information, indicating severity of failure information based on different standards contained in a plurality of failure notifications received by said at least one storage device or said virtualization device at which said failure is detected and convert said severity information to severity information based on a common standard; and having said management server output failure information based on converted severity information according to a method determined ahead of time (See Fig. 7 and Col. 8, lines 9-12).

14. Referring to claim 8, Barnett teaches a storage area network (SAN) that includes RAID storage and a communications architecture manager (CAM) that uses simple network management protocol/management information base (SNMP/MIB) to monitor devices. The SAN uses Fiber Channel for data and a TCP/IP network for the

management of the devices. This is interpreted as in a system including: a plurality of storage devices connected to a server device by way of a network and a management server connected to said plurality of storage devices by way of a management network a method for managing failure information (See Fig. 3, Col.1, lines 3-13, and Col. 5, lines 22-39).

Barnett discloses the CAM receiving errors generated from failing components and the generated the errors can cause devices along the same network connection path to generate additional errors, this is interpreted as a failure notification step of having said management server receive a plurality of failure notifications from a plurality of failure notifications from a plurality of storage devices at which failures are detected (See Col. 2, lines 30-36). Barnett discloses the use of weighting system in the diagnostic analysis for the various errors, this is interpreted as converting step of converting a plurality of severity information, indicating severity of failure information based on different standards, contained in said plurality of failure notifications to severity information based on a common standard (See Fig. 7 and Col. 8, lines 9-12).

Finally Barnett teaches using the weighted decision analysis in order to isolate failing components, this is interpreted as a processing step of processing each of said plurality of failure notifications based on converted severity information (See Col. 8, lines 15-16).

15. Referring to claim 9, Barnet teaches generating a SAN topology map, a SAN determination information table, and a SAN diagnostic table. These are used to analyze

the errors. This is interpreted as wherein said converting step is executed based on configuration information of said network (See Col. 1, lines 23-29 and Col. 2, lines 26-36).

16. Referring to claim 10, Barnett teaches the use of a shared RAID, this is interpreted as one of said plurality of storage devices manages a real volume in another storage device as a virtual volume (See Fig. 3 and Col. 5, lines 22-25). Barnett teaches the use of a SAN topology map and a SAN diagnostic table and comparing each error temporally and spatially with the other errors, this is interpreted as said converting step is executed based on an association relationship between said real volume and said virtual volume managed by said one of said plurality of storage devices (See Col. 2, lines 32-36).

17. Referring to claim 11, Barnett teaches a storage area network (SAN) that includes RAID storage and a communications architecture manager (CAM) that uses simple network management protocol/management information base (SNMP/MIB) to monitor devices. The SAN uses Fiber Channel for data and a TCP/IP network for the management of the devices. This is interpreted as in a management server connected by way of a management network to at least one storage device including a real volume and a virtualization device connected by way of a network to said at least one storage device and managing said real volume of said at least one storage device as a virtual volume (See Fig. 3, Col. 1, lines 3-13, and Col. 5, lines 22-39).

Barnett discloses providing a data processing system for communicating error information in the SAN, this is interpreted as an interface control module for connecting to said management network, a processor, a memory for storing a program executed by said processor and information used by said processor and an output module outputting processing results from operations executed by said processor (See Col. 1, lines 30-32). Barnett discloses the CAM receiving errors generated from failing components and the generated the errors can cause devices along the same network connection path to generate additional errors, this is interpreted as said interface control module receives a plurality of failure notifications from said at least one storage device and said virtualization device at which a failure is detected (See Col. 2, lines 30-36).

Barnett teaches the use of a SAN topology map and a SAN diagnostic table and comparing each error temporally and spatially with the other errors, this is interpreted said processor associates said plurality of failure notifications based on an association relationship between said real volume and said virtual volume managed by said virtualization device (See Col. 2, lines 32-36). Finally Barnett teaches determining a candidate for generating the error and reporting the candidate for replacement, this is interpreted as said output module outputs results from said processor in which said failure notifications are associated (See Col. 2, lines 36-38).

18. Referring to claim 12, Barnett teaches the use of a shared RAID, this is interpreted as wherein said processor associates a plurality of failure notifications

involving a shared real volume or virtual volume related to a failure notified by a failure notification (See Fig. 3 and Col. 5, lines 22-25).

19. Referring to claim 13, Barnett discloses comparing temporally each error with the other errors, this interpreted as wherein said processor associates a plurality of failure notifications received by said interface control module within a fixed time interval (See Col. 2, lines 32-36).

20. Referring to claim 14, Barnett teaches generating a SAN topology map, a SAN determination information table, and a SAN diagnostic table. These are used to analyze the errors. This is interpreted as said interface control module receives configuration information about said network from a device connected to said network and said processor identifies an association relationship between said real volume and said virtual volume based on said configuration information (See Col. 1, lines 23-29 and Col. 2, lines 26-36).

21. Referring to claim 15, Barnett discloses the CAM receiving errors generated from failing components and the generated the errors can cause devices along the same network connection path to generate additional errors, this is interpreted as said processor identifies causal relationships between said plurality of failure notifications based on an association relationship between said real volume and said virtual volume (See Col. 2, lines 30-36). Barnett also teaches determining a candidate for generating

the error and reporting the candidate for replacement, this is interpreted as said outputting module outputs said identified causal relationships (See Col. 2 ,lines 36-38).

22. Referring to claim 16, Barnett teaches the use of a shared RAID, this is interpreted as said processor associates a plurality of failure notifications involving a shared real volume or virtual volume related to a failure indicated by a failure notification (See Fig. 3 and Col. 5, lines 22-25). Barnett discloses the CAM receiving errors generated from failing components and the generated the errors can cause devices along the same network connection path to generate additional errors and determining a candidate that generated the error, this is interpreted as out of said associated failure notifications, a failure notification indicating a hardware malfunction is identified as a failure notification indicating a failure cause and a failure notification indicating an access error is identified as a failure notification issued under influence of said failure cause (See Col. 2, lines 30-36).

23. Referring to claim 17, Barnett discloses the use of weighting system in the diagnostic analysis for the various errors, this is interpreted as said processor takes a plurality of severity information, indicating severity of failure information based on different standards, contained in a plurality of failure notifications received by said at least one storage device or said virtualization device at which said failure is detected and converts said severity information to severity information based on a common standard; and said output module outputs failure information based on converted

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severity information according to a method determined ahead of time (See Fig. 7 and Col. 8, lines 9-12).

24. Referring to claim 18, Barnett teaches a storage area network (SAN) that includes RAID storage and a communications architecture manager (CAM) that uses simple network management protocol/management information base (SNMP/MIB) to monitor devices. The SAN uses Fiber Channel for data and a TCP/IP network for the management of the devices. This is interpreted as a management server connected to a server device by way of a network and a management server connected by way of management network to a plurality of storage devices connected to a server device by way of a network (See Fig. 3, Col.1, lines 3-13, and Col. 5, lines 22-39).

Barnett discloses providing a data processing system for communicating error information in the SAN, this is interpreted as an interface control module connected to said management network, a processor, and an output module outputting processing results from operations executed by said processor (See Col. 1, lines 30-32). Barnett discloses the CAM receiving errors generated from failing components and the generated the errors can cause devices along the same network connection path to generate additional errors, this is interpreted as said interface control module receives a plurality of failure notifications from a plurality of storage devices at which failures are detected (See Col. 2, lines 30-36).

Barnett discloses the use of weighting system in the diagnostic analysis for the various errors, this is interpreted as said processor converts a plurality of severity

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information, indicating severity of failure information based on different standards, contained in said plurality of failure notifications to severity information based on a common standard (See Fig. 7 and Col. 8, lines 9-12). Finally Barnett teaches using the weighted decision analysis in order to isolate failing components, this is interpreted as processes each of said plurality of failure notifications based on converted severity information (See Col. 8, lines 15-16).

25. Referring to claim 19, Barnett teaches generating a SAN topology map, a SAN determination information table, and a SAN diagnostic table. These are used to analyze the errors. This is interpreted as said processor converts said plurality of severity information based on different standards to severity information based on a common standard using configuration information about said network (See Col. 1, lines 23-29 and Col. 2, lines 26-36).

26. Referring to claim 20, Barnett teaches the use of a shared RAID, this is interpreted as one of said plurality of storage devices manages a real volume in another storage device as a virtual volume (See Fig. 3 and Col. 5, lines 22-25). Barnett teaches the use of a SAN topology map and a SAN diagnostic table and comparing each error temporally and spatially with the other errors, this is interpreted as said processor converts said plurality of severity information based on different standards to severity information based on a common standard using an association relationship between

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said real volume and said virtual volume managed by said one of said plurality of storage devices (See Col. 2, lines 32-36).

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are closely related storage systems.

U.S. Patent App. Pub. 2003/0126518 to Binger

U.S. Patent 6,253,240 to Axberg et al.

U.S. Patent 6,889,345 to Sicola et al.

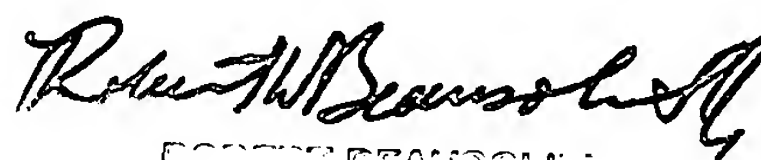
28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Manoskey whose telephone number is (571) 272-3648. The examiner can normally be reached on Mon.-Fri. (7:30am to 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JDM
December 7, 2005


ROBERT DEMOSS
SENIOR PATENT EXAMINER
TECHNOLOGY CENTER 2113